

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : TOYO ENG WORKS LTD

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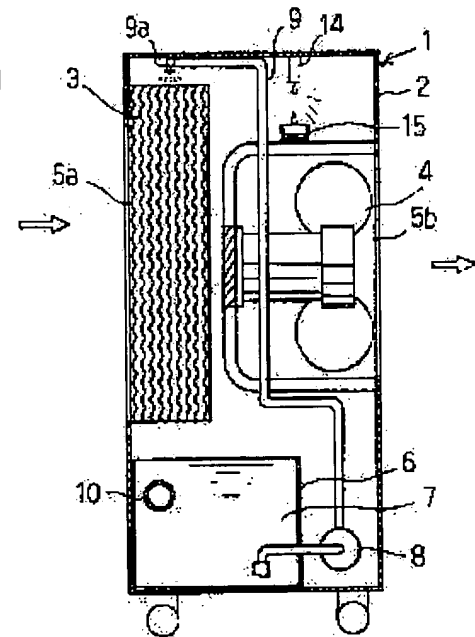
(72)Inventor : TSUNODA YUSUKE  
YAMAMOTO MASAYOSHI

## (54) COOLER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide an air cooler of a water evaporation type which can suppress decomposition of cooling water and generation of a bad smell and can send out cooled air being fragrant and having a refreshing and sanitary feel.

**SOLUTION:** In regard to a cooler wherein air passing through a cooling element 3 is cooled by the latent heat of evaporation of cooling water 7 flowing down through the cooling element and the cooling water is sucked up from a water tank 6 by a pump 8 and sprinkled over the cooling element, the cooler is equipped with a means 10 for sterilizing the cooling water in the water tank and also with a perfume supplying device 14 which gives fragrance to the air having passed the cooling element 3.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

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converted registration]

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[Date of registration]

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rejection][Date of requesting appeal against examiner's decision  
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CLAIMS

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[Claim(s)]

[Claim 1] The condensator with which the air which passes a cooling element is cooled by the latent heat of vaporization of the cooling water which flows down a cooling element, and cooling water is equipped with a means to sterilize the cooling water in a water tank, in the condensator which is sucked up with a pump from a water tank and is sprinkled by the cooling element.

[Claim 2] The condensator according to claim 1 whose cooling water sterilization means is the ultraviolet ray lamp which irradiates ultraviolet rays at the cooling water in a water tank.

[Claim 3] The condensator according to claim 1 whose cooling water sterilization means is the ozone generator which supplies ozone to the cooling water in a water tank.

[Claim 4] The condensator which comes to prepare the perfume feeder on which aroma is made to be worn in the condensator which the air which passes a cooling element is cooled by the latent heat of vaporization of the cooling water which flows down a cooling element, and cooling water is sucked up with a pump from a water tank, and is sprinkled by the cooling element to a means to sterilize the cooling water in a water tank, and the air which passed the cooling element.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] this invention -- the condensator for air conditioning -- it is related with the air cooler of a water evaporation type in more detail.

[0002]

[Description of the Prior Art] In the air cooler of the water evaporation type cooled by the latent heat of vaporization of the cooling water with which the air which passes a cooling element flows down a cooling element, it is circulating water which returns to a water tank through a cooling element, therefore if the cooling water from a water tank is carrying out long Japanese moon use, the cooling water in a water tank is decomposed by various kinds of bacteria and propagation of a microorganism, comes to generate an offensive odor, and is insanitary.

[0003]

[Objects of the Invention] The air which this invention could inhibit putrefaction of cooling water and generating of an offensive odor, and was cooled wears aroma, and enabled it to offer the air cooler of the water evaporation type which can send out air with coolness and a feeling of health.

[0004]

[Elements of the Invention] In order to attain the above-mentioned purpose, the condensator concerning this invention shall be equipped with a means to sterilize the cooling water in a water tank, in the condensator which the air which passes a cooling element is cooled by the latent heat of vaporization of the cooling water which flows down a cooling element, and cooling water is sucked up with a pump from a water tank, and is sprinkled by the cooling element.

[0005] In more detail, a cooling water sterilization means is the ultraviolet ray lamp which irradiates ultraviolet rays at the cooling water in a water tank, or is the ozone generator which supplies ozone to the cooling water in a water tank. Moreover, it shall also have the perfume feeder on which aroma is made to be worn to the air which passed the cooling element.

[0006]

[Example] The example which shows the example of this invention below to accompanying drawings 1-5 explains. In drawing, a sign 1 shows a condensator and 2 shows the casing. Having the cooling element 3 and a blower 4 in casing, air inhaled from air inlet 5a of the tooth-back section in casing is used as the cooling element 3 cooling and temperature control, and blows off from outlet 5b of the front-face section of casing with a blower 4.

[0007] what opened through for air, moreover opened the clearance in the flow direction of air for the filter plate crooked in the shape of zigzag in a lengthwise direction a little, for example, and carried out the multilayer array although there were various things in a cooling element -- or short \* material -- interlacing -- it is -- air -- a longitudinal direction -- a passage -- water -- a lengthwise direction -- it can flow down -- having made -- a thing -- etc. -- it is .

[0008] In case the cooling water 7 currently collected to the water tank 6 in casing sucks up with a pump 8, and is lifted by the cooling element 3, an element is watered from the upper part from water spray tube part 9a of a feed pipe 9 and it flows down the inside of an element, the air which passes an element is cooled, it flows down in a water tank 6, the water in a water tank is pumped up with a pump, and it repeats watering from water spray tube part 9a to a cooling element.

[0009] The air which sterilizes the circulating cooling water supplied to an element in this invention, and is sent out out of casing is tintured with aroma, a feeling of \*\*, and feeling of purity.

[0010] In order to sterilize a circulating cooling water, the ultraviolet ray lamp 10 which sterilizes the cooling water in a water tank is formed in a water tank. Under the present circumstances, an ultraviolet ray lamp is attached in the part located in the upper part of a water tank, or underwater so that it may sterilize not only the front face of the cooling water in a water tank but underwater.

[0011] Although a sterilization means is an example by the ultraviolet ray lamp, drawing 2 may supply the ozone from an ozonator 11 to the cooling water in a water tank from a feed pipe 12 like drawing 3, and may sterilize cooling water by ozone. In this case, the ozonolysis catalyst object 13 which processed activated carbon into the air outlet side of a cooling element in the shape of a filter is established, and it is made to become the threshold limit value of 0.1 ppm or less of the ozone on work environment.

[0012] Drawing 4 shows the example which was made to sterilize besides ozone by ultraviolet rays, and, thereby, can more fully be sterilized.

[0013] In order to give aroma to cooling air, from a cooling element, perfume, such as a peppermint system and a citrus system, is sprinkled on continuation or an intermittent target by the perfume feeder 14, it is dropped at an evaporating dish 15, or the perfume feeder 16 is connected to the feed pipe 9 to an element with an airpipe 17 like drawing 5 again, and perfume is intermittently supplied to air with continuation or a timer to the water in a feed pipe 9. Moreover, in intermittent supply, in case cooling water is supplied to a water tank, the oil-level detection by oil-level detection equipment (for example, float) when cooling water reaches an upper limit is interlocked with, and perfume is supplied.

[0014]

[Function and Effect] In this invention, in case introduction air passes along a cooling element, it is cooled by the latent heat of vaporization of the cooling water which flows down an element, and temperature control of it is carried out, and it blows off.

[0015] Although the cooling water supplied to a cooling element is circulating water, since ultraviolet rays are irradiated by this circulating water or ozone is supplied, it is sterilized and sterilized and growth of a bacillus is controlled. therefore, it is kept sanitary, putrefaction and generating of an offensive odor are inhibited, and cooling water is long -- thing use can be carried out.

[0016] Moreover, there is continuation or a so-called **\*(ing)** [ coolness ]-to improvement in increase, mental health, and environmental sanitation size since aroma is supplied intermittently, while aroma drifts in the cooled interior of a room and there is invigoration by this in the air which passed along the cooling element from a perfume feeder.

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TECHNICAL FIELD

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EFFECT OF THE INVENTION

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TECHNICAL PROBLEM

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[Description of the Prior Art] In the air cooler of the water evaporation type cooled by the latent heat of vaporization of the cooling water with which the air which passes a cooling element flows down a cooling element, it is circulating water which returns to a water tank through a cooling element, therefore if the cooling water from a water tank is carrying out long Japanese moon use, the cooling water in a water tank is decomposed by various kinds of bacteria and propagation of a microorganism, comes to generate an offensive odor, and is insanitary.

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EXAMPLE

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[0012] Drawing 4 shows the example which was made to sterilize besides ozone by ultraviolet rays, and, thereby, can more fully be sterilized.

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[0014]

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The front view of the condensator concerning this invention.

[Drawing 2] The vertical section side elevation of the condensator concerning this invention.

[Drawing 3] The vertical section side elevation of other sterilization means of the condensator concerning this invention.

[Drawing 4] The vertical section side elevation of the condensator concerning this invention which was made to sterilize at ozone and ultraviolet rays.

[Drawing 5] Drawing showing other aroma grant means of the condensator concerning this invention.

[Description of Notations]

- 1: Condensator
- 2: Casing
- 3: Cooling element
- 4: Blower
- 5a: Air inlet
- 5b: Outlet
- 6: Water tank
- 7: Cooling water
- 8: Pump
- 9: Feed pipe
- 9a: Water spray tube part
- 10: Ultraviolet ray lamp
- 11: Ozonator
- 12: Feed pipe
- 13: Ozonolysis catalyst object
- 14: Perfume feeder
- 15: Evaporating dish
- 16: Perfume feeder
- 17: Airpipe

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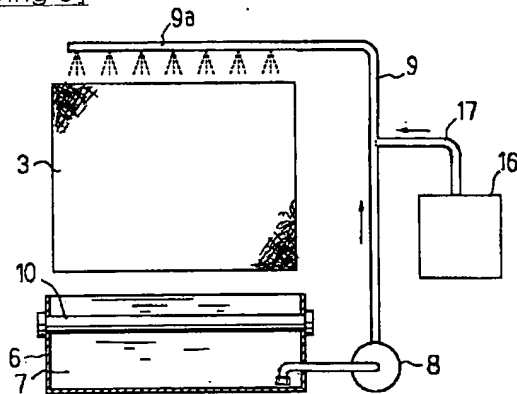
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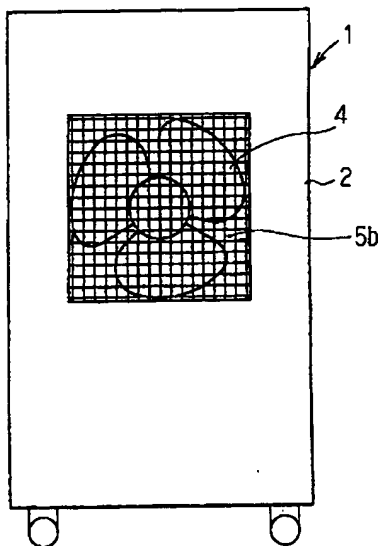
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DRAWINGS

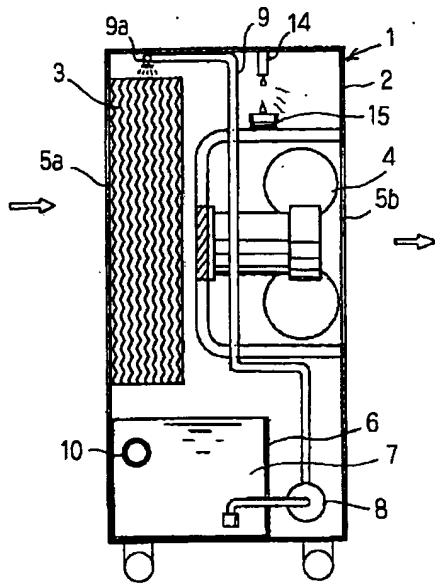
[Drawing 5]



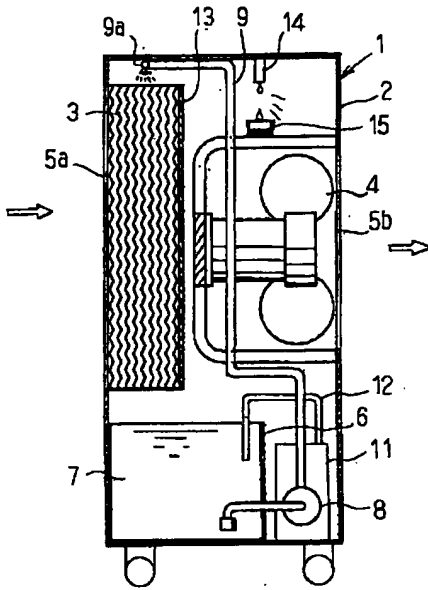
[Drawing 1]



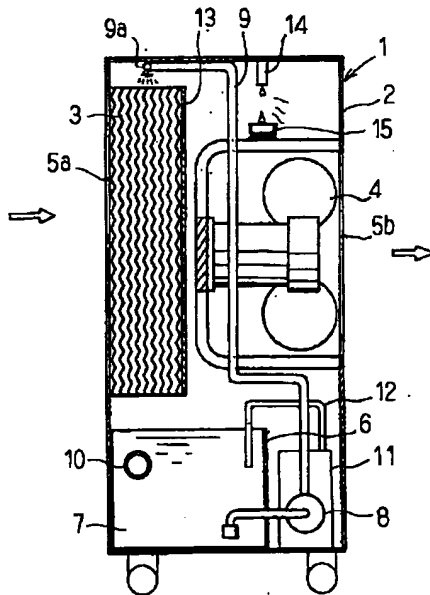
[Drawing 2]



[Drawing 3]



[Drawing 4]



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